MOTOROLA SOLUTIONS
SERVICES

Motorola Solutions NG Public Safety Product & Service Offerings

Agenda

- **Why Motorola? – Value Proposition**
- **Motorola Public Safety Offerings**
- **NG9-1-1 Overview**
- **Select Motorola Product Offerings**
  - **9-1-1 Call Taking**
  - **CAD**
  - **CAD / Video Integration**
  - **Radio Console**

Why Motorola? - Value Prop

- *We have a vision for Next Generation Public Safety – which includes Broadband, Integrated Command & Control, and NG9-1-1*

- *Motorola is a worldwide leader in "mission critical" network design and engineering*

- *Our solutions are used by command centers globally*

- *Motorola is a firm supporter of standards-based approaches in Public Safety*

- *Motorola takes an "independent systems integrator" approach to NG9-1-1*

- *We have a best in class eco-system of NG9-1-1 partners and vendors with proven experience*

Motorola Public Safety Offerings

- *Motorola provides comprehensive product and service offerings to public safety customers aligned to our NG Public Safety Vision*

  - *Motorola Professional, Integration, Support, and Managed Services, and select third party vendor products for:*
    - *NG9-1-1 solutions (NG call delivery, NG 9-1-1 call taking, NG PSAP, etc.)*
    - *Video solutions (cameras, VMS, analytics, etc.)*

  - *Motorola products across the NG public safety command center applications spectrum*
    - *Computer Aided Dispatch (CAD)*
    - *Records Management*
    - *Radio Console*
    - *Etc.*

E9-1-1 vs. NG9-1-1

E9-1-1	NG9-1-1
Complex analog trunking and data network	Engineered, managed IP networks (ESInet)
Class 5 switch for Selective Router	IP software selective routing
Translation based control	GIS and database controls
Limited to voice calls	Voice, text, video
Data bandwidth 20 char (digits)	Bandwidth unlimited
Complex Emergency Gateway Network for VoIP	Direct handling of Internet sourced calls
Custom interfaces for each service type	Standard IP interface for all service types

NG9-1-1 is Not (just)…

- **VoIP to the PSAP**
  - Full, "end state" NG9-1-1 involves more than just send calls to a PSAP over IP / VoIP
  - Without location-based routing of "calls", it is not "NG-baseline," let alone "full NG"

- **Texting to 9-1-1**
  - An important capability, but NG9-1-1 is MORE than just receiving text messages (or photos or video, for that matter, at the PSAP)
  - Multimedia sessions to the PSAP are important, but NG involves much more…

How IS NG9-1-1 Different?

- Technology: Packet-Based vs. Circuit-Switched

- Functions:
  - Replicates E9-1-1 capabilities
  - Adds new capabilities
  - GIS vs. Tabular MSAG

- **No longer a 'local' service:**
  - Interoperability at county, region, state and national levels
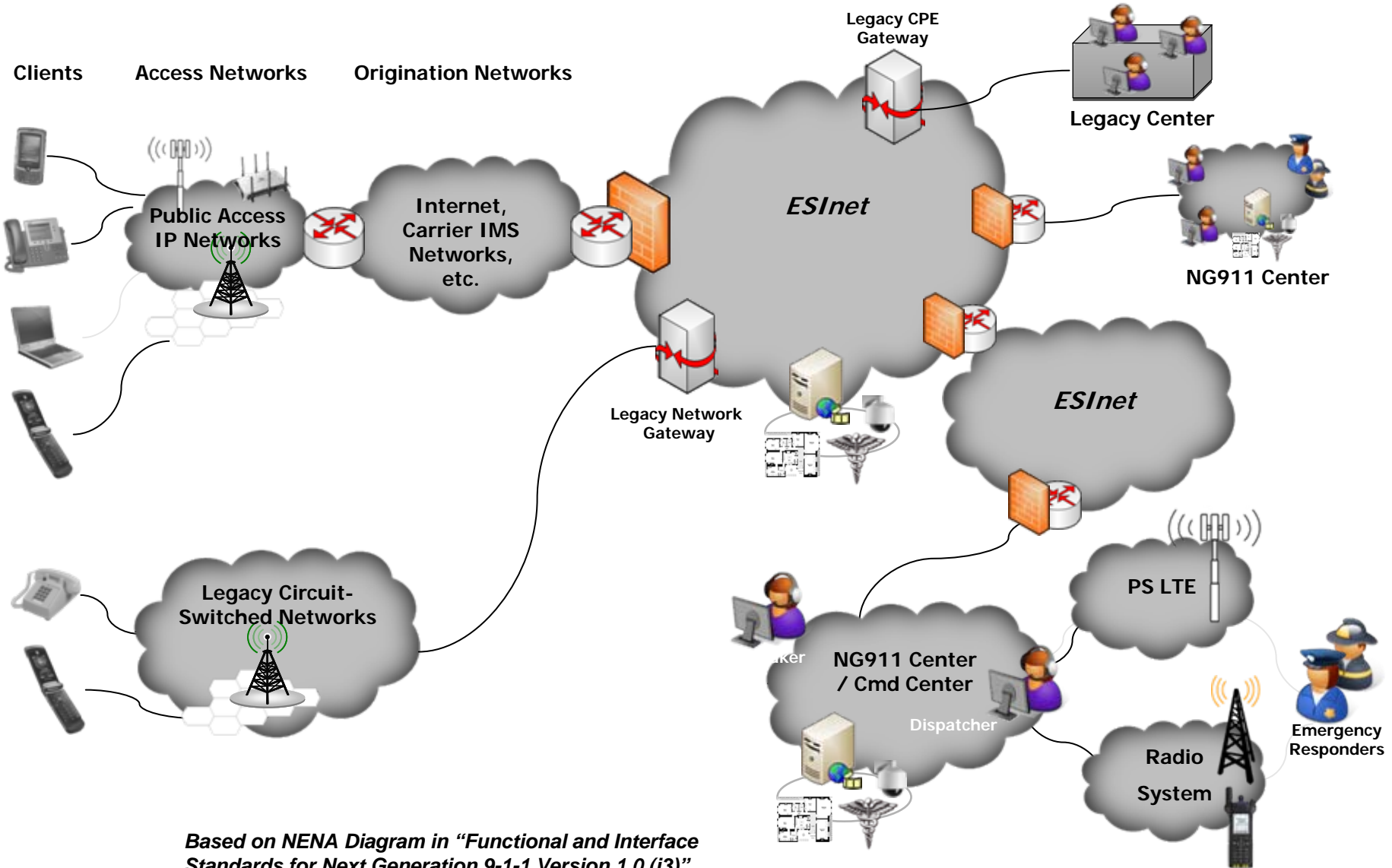
NG9-1-1 ADDED FEATURES

- GIS based routing control

- Location data transported with the call

- Additional types of calls and messaging

- Additional data

- Virtual Dispatch Center capabilities

- Added alternate routing options (e.g., sensing Center status)

- Direct control of call management (e.g., PRF)

- Designed to support interoperability

- Built on open standards

Effective use of available public capital and operating costs for emergency communications services

Promotion of increased coordination and partnerships within the emergency response community
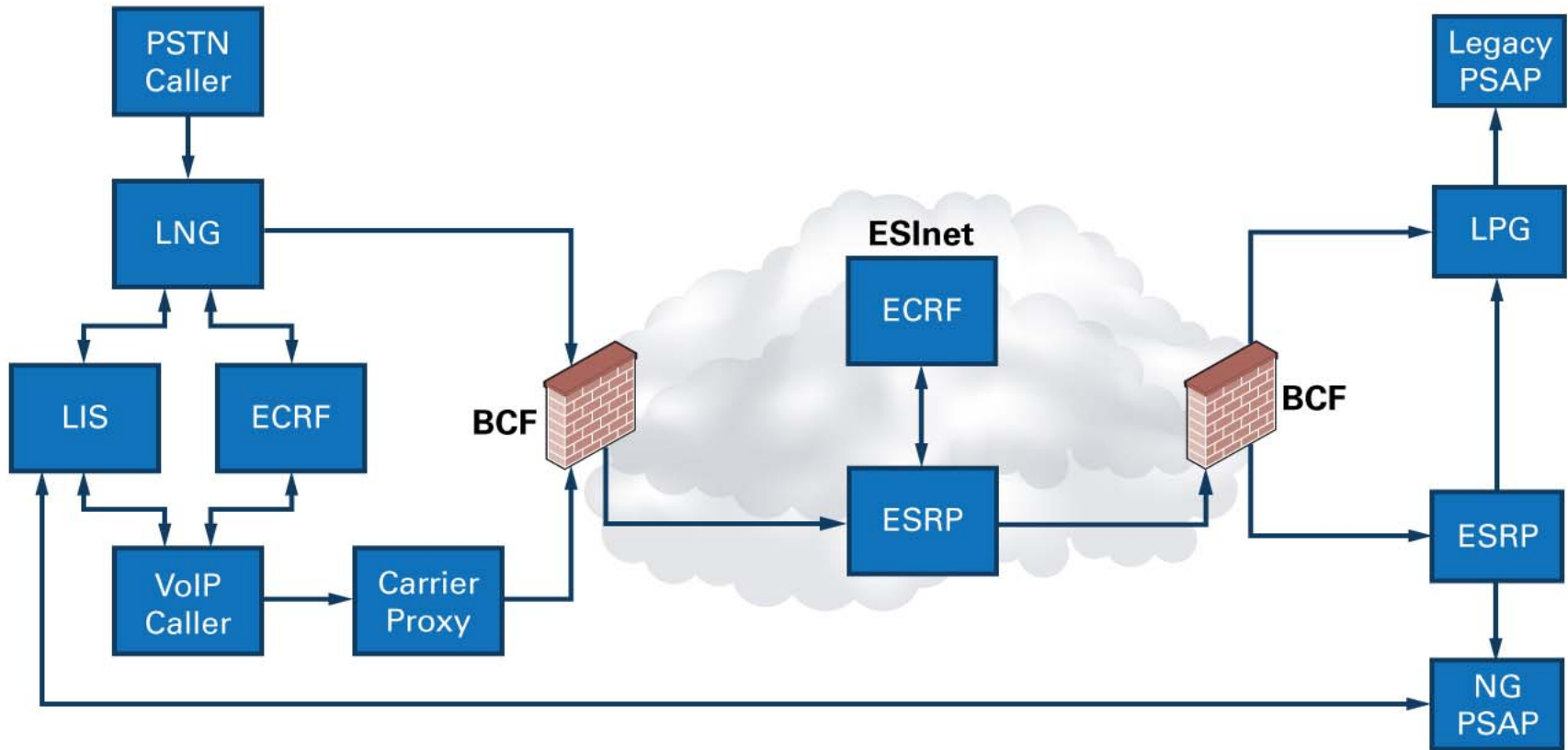
NG9-1-1 System Overview

Clients   Access Networks   Origination Networks

Legacy CPE Gateway

Legacy Center

Public Access IP Networks

Internet, Carrier IMS Networks, etc.

ESInet

NG911 Center

Legacy Network Gateway

ESInet

Legacy Circuit-Switched Networks

PS LTE

NG911 Center / Cmd Center

Dispatcher

Radio System

Emergency Responders

Based on NENA Diagram in "Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3)" (to be adopted by EENA)
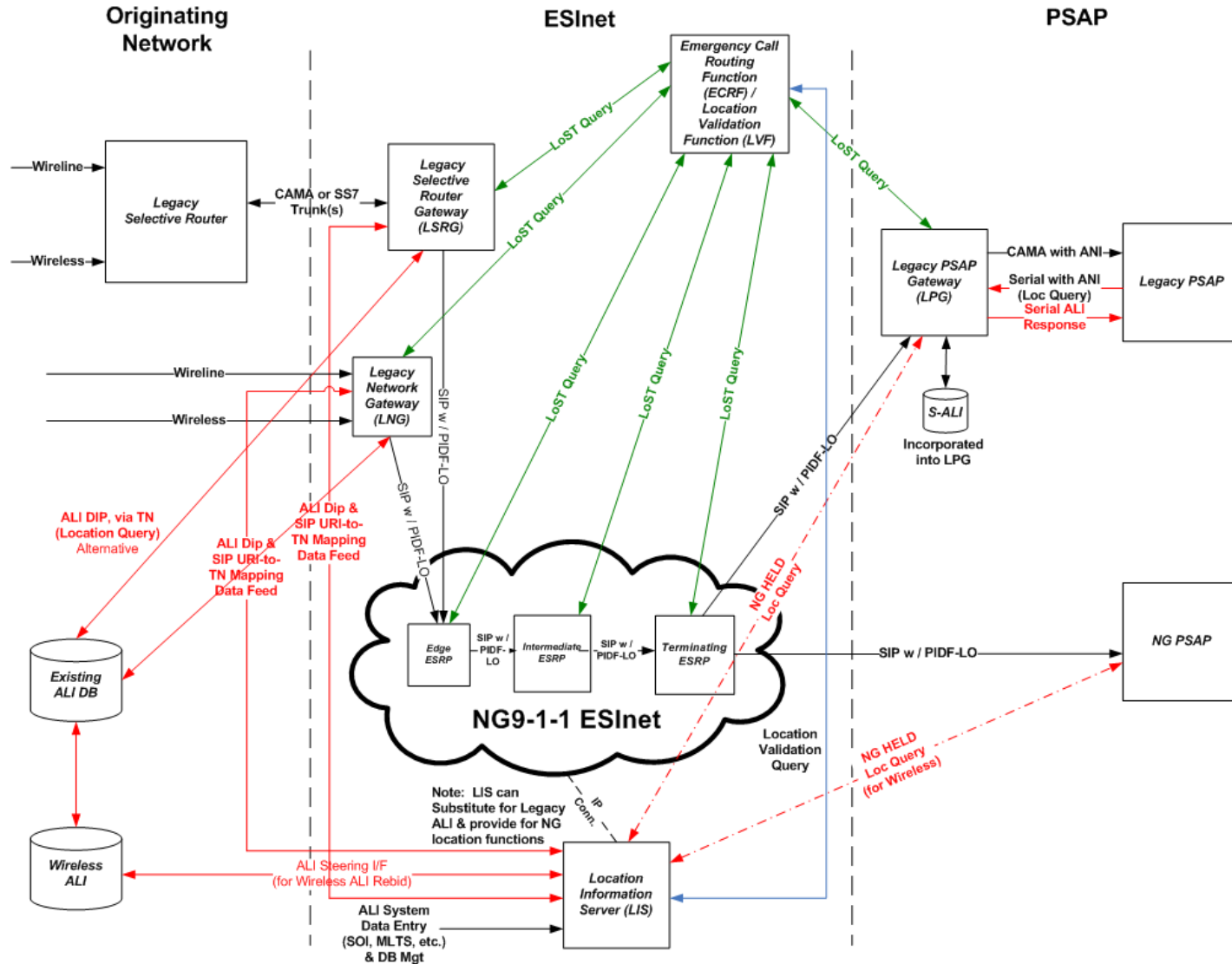
NENA "i3"NG9-1-1 Network Design
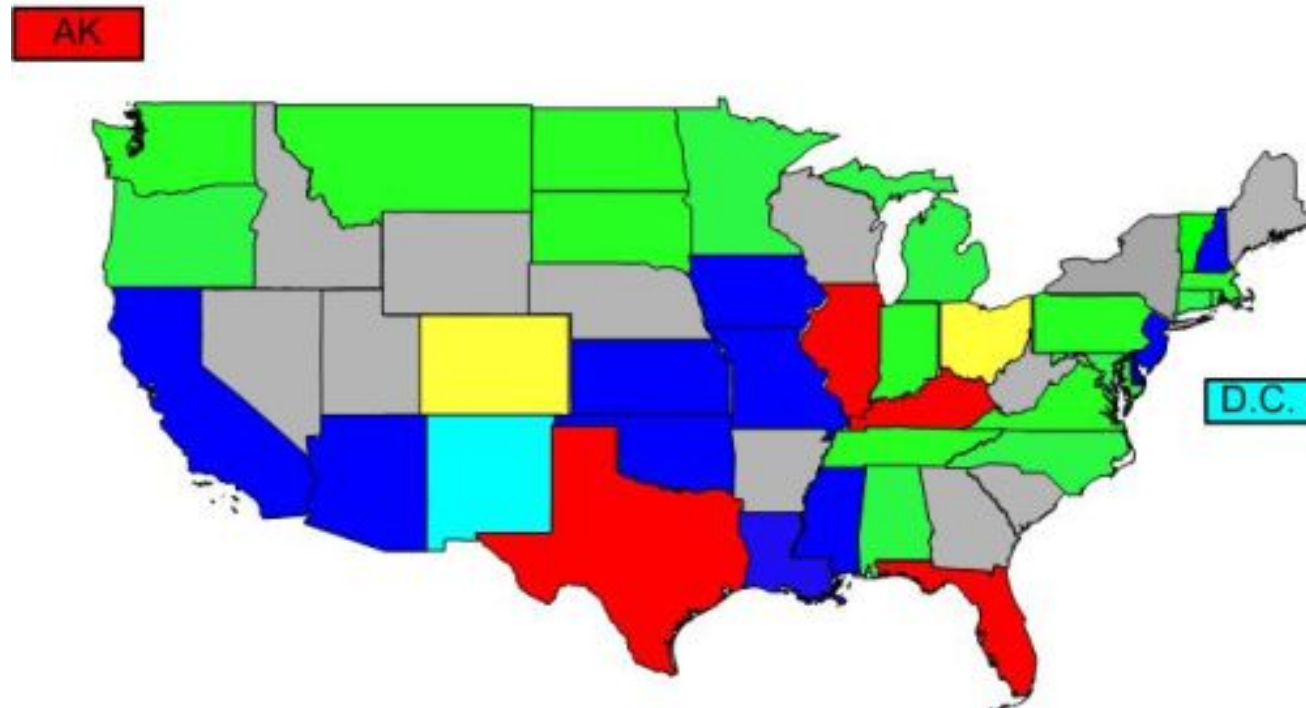

i3 Network Design

NG9-1-1 Solution Components

- *Emergency Services IP Network (ESInet) – Private, managed IP network used to transmit NG9-1-1 calls from originating networks / devices to PSAPs*

- *Legacy Network Gateway (LNG) – converts originating network legacy signals to SIP*

- *Legacy Selective Router Gateway (LSRG) – enables two-way communications between ESInet-located PSAPs and PSAPs on legacy networks*

- *Legacy PSAP Gateway (LPG) – converts SIP to legacy CAMA, so that traditional PSAPs can connect to NG networks*

- *Location Information Server (LIS) – Provides location to end devices or other NG elements that request location of a device, based on a series of identifiers*

- *Emergency Call Routing Function (ECRF) – Provides location-based routing of emergency calls based on stored GIS boundary file data*

- *Location Validation Function (LVF) – Provides civic address location validation vs. GIS database information*

- *Emergency Services Routing Proxy (ESRP)– SIP proxy optimized for emergency calls that forwards emergency calls*

- *NG PSAP – Native VoIP-based PSAP solution, designed according to all of the existing NG9-1-1 standards from NENA, IETF, etc.*

NG9-1-1 Detailed Architecture

Current NG9-1-1 Activity

National IP Network and NG9-1-1 Progress

IP network planned	**IPP**	BLUE
IP network available at state level	**IPS**	TURQUOISE
IP network at sub-state level	**IPSS**	YELLOW
NG9-1-1 preparation activity at state level	**NGS**	GREEN
NG9-1-1 preparation activity at sub-state level	**NGSS**	RED

Note: Current regulation in many states unintentionally prohibits NG9-1-1 deployments

Source:

NG9-1-1: Early Adopters

Entity	Project	RFP	Award	Funding Source
Counties of Southern Illinois	16 county region ESInet & NG9-1-1 solution	Released September 2010	1Q – 2Q 2011	NTIA BTOP Phase 2 Grant, Existing 9-1-1 funds
North Central North Carolina (NCNC) NG9-1-1 Compact	3 Jurisdiction Pilot (Winston-Salem, Surry County, Eden, NC)	N/A	2Q 2010 (2Q 2011 go-live date)	North Carolina Wireless Board Grant
Iowa	Statewide ESInet / NG9-1-1 solution for wireless calls	Mid 2010	4Q 2010	Enhance 911 Act Grants and existing 9-1-1 funds
Tennessee	ESInet Monitoring Contract	Oct-10	4Q 2010	?
Alabama	ANGEN / state ESInet for wireless calls	Nov-10	2Q 2011	Enhance 911 Act Grants and existing 9-1-1 funds

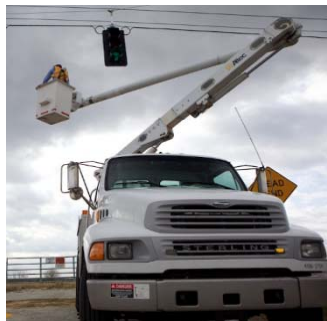# Testing – NENA Industry Collaboration events (ICE)

- **Completely voluntary; NENA sponsored, vendor managed**

- **Guided by a steering committee with representatives from all stakeholder groups; each ICE event has its own individual planning committee**

- **Based on the standards work being done in NENA, ATIS / ESIF, IETF, TIA and other SDOs**

- **Three (3) events held, so far:**
  - ICE 1 (week of 11/02/09, College Station, TX): i3 end-to-end testing
  - ICE 2 (week of 05/25/10, Irving, TX): NG9-1-1 transitional elements
  - ICE 3 (week of 11/29/10, Bryan, TX) location information

- **ICE 4 will take place November 2011, Irving, TX**
  - Focused on LoST hierarchy-based call routing

- **Four (4) more ICE events planned**

MOTOROLA INTEGRATED COMMAND

TRANSFORMS A COMPLEX WORLD OF VOICE, DATA AND VIDEO INTO ONE, COMMON, REAL-TIME OPERATIONAL VIEW FOR FASTER, SMARTER DECISIONS WITH SAFER OUTCOMES

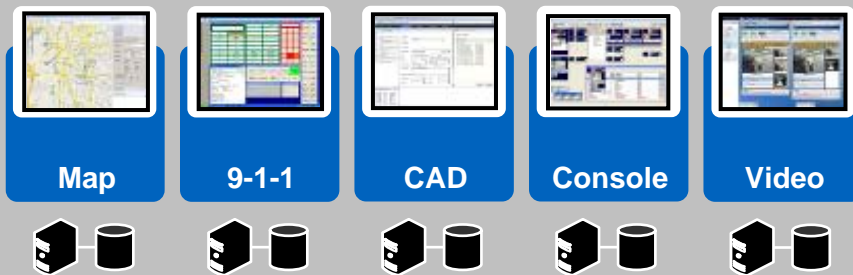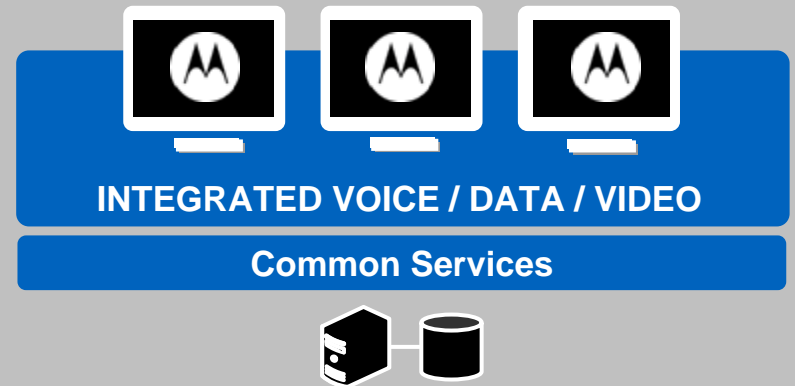# MOTOROLA SOLUTIONS

Today's Command Center Challenge
Multiple discrete platforms have operational, performance and cost impact

Integrated Command Center

Map   **9-1-1**   **CAD**   **Console**   **Video**

INTEGRATED VOICE / DATA / VIDEO

Common Services

- Unique user interfaces
- Requiring its own consoles
- Individual storage solutions
- Multiple geocoding systems
- Separate authentication and sign-on
- No standardization of interfaces
- Unique, isolated mapping

- Common user interface
- Fully correlated CAD, voice & video
- Unified data, query and reporting
- Common geocoding, time & date stamps
- Single sign-on authentication
- Flexible, scalable platform
- Common, interactive map

…Driving the need for integration

Building a future-minded, common platform to allow sensible evolution & integration

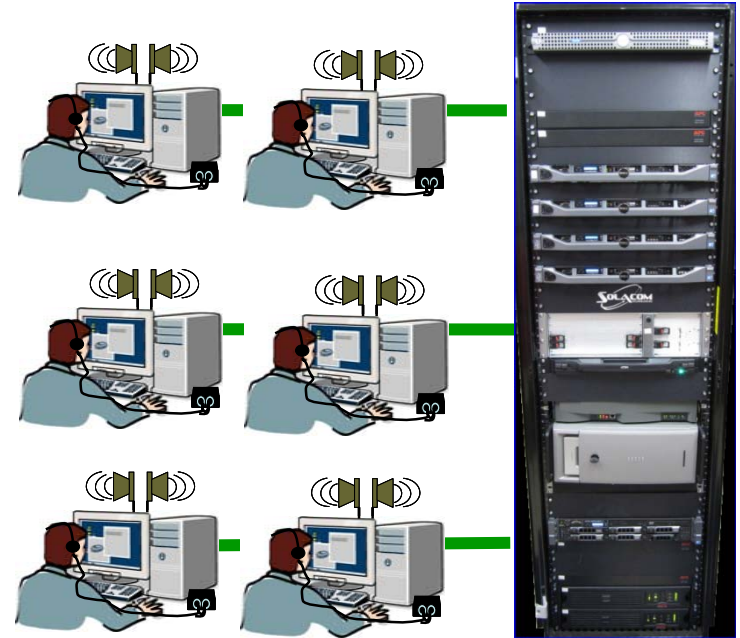# Example NG9-1-1 Call Taking Solution: Guardian Call Taking CPE

- **Guardian Intelligent Workstation**

- **Guardian Next Generation E9-1-1 / NG9-1-1 Controller**

- **Guardian Emergency Gateway (to convert incoming 9-1-1 calls to IP)**

Guardian NG9-1-1 Product

Core Features

- **Provides required legacy functionality**
- **NENA NG9-1-1 ready today**
- **IP to the Desktop**
- **.NET Programming Environment**
- **Support Local and/or Remote Positions**
- **Built-in ACD**
- **Integrated MIS & Audio Recording**
- **IP Audio Recording -** *At the Host or Dispatch Center*
- **Extremely powerful conferencing capability**

PREMIER ONE CAD

EFFICIENT WORKFLOW

- Uninterrupted workflows, no pop-ups
- Intuitive "work assist" area
- CAD to console integration
- Intelligent agency-defined command line

ENHANCED SITUATIONAL AWARENESS

- Real-time video accessed from CAD map
- Send photos, video, text to field personnel
- Responder location tracking
- Automatic notifications and alerts

BETTER COORDINATED RESPONSES

- Multi-agency / multi-discipline capable
- CAD to radio system integration
- Geo-routing and calculations
- Instant AVL playback

CAD & VIDEO INTEGRATION

PREMIERONE **+** **Video**

| Computer Aided Dispatch (CAD) | Video Management |
| Automatic Vehicle Location (AVL) | Video Client |

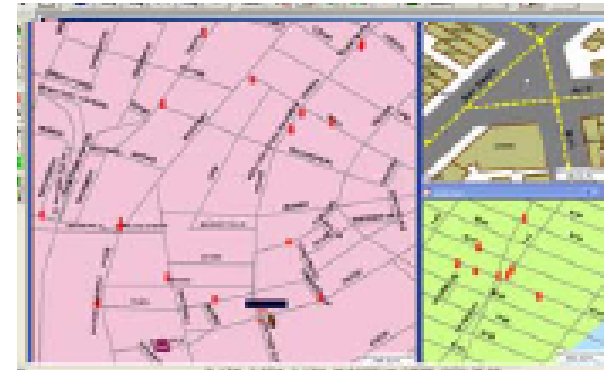**Deliver tactical video information to dispatcher's console**

Identifies & correlates all cameras found within a pre-configured distance or can process video from those contacting 9-1-1

Video from all relevant cameras is displayed on dispatcher's screen in the video browser
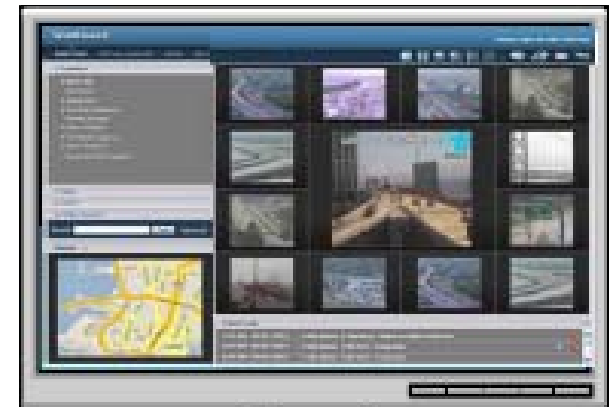
Dispatcher has ability to capture video clips or direct the video streams to the responding officers

Responding officers can view and control video feeds from relevant cameras as they approach the scene

CAD Client

Video Client

RADIO CONSOLE
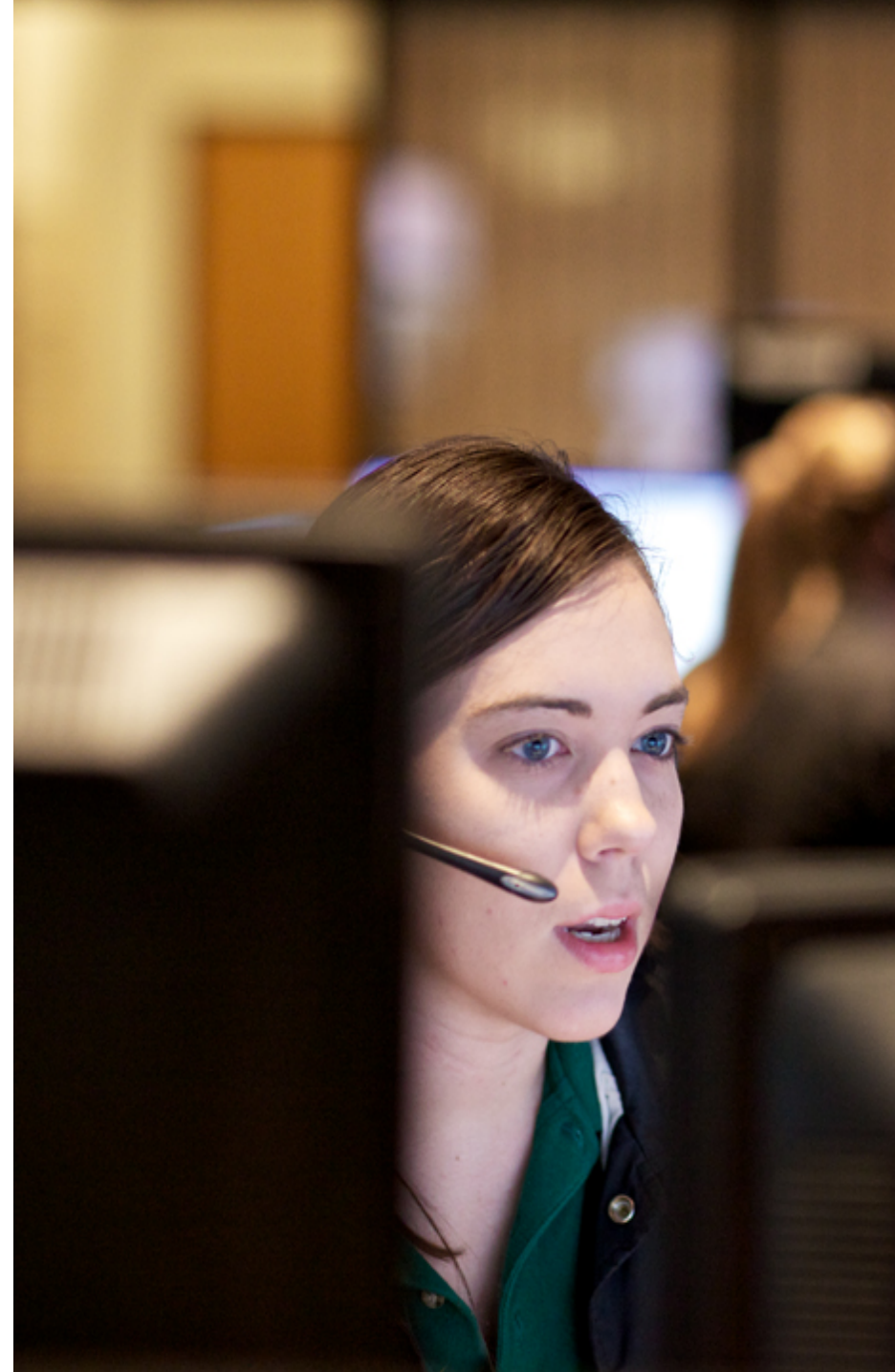
INCREASED OPERATIONAL EFFICIENCY

- Integration with CAD allows for simplified workflows

- Proven, intuitive GUI interface simplifies training

- End-to-end encryption with centralized key management

- Multi-agency partitioning

IMPROVED FINANCIAL EFFICIENCY

- Future-proof investment – Dimetra and TETRA / TEDS are platforms for all future development

- Centralized configuration and fault management

- Distributed IP architecture allows equipment to be located where it is needed

- Bandwidth management minimizes WAN link costs

- No "back room" electronics

REDUCED SERVICE TIMES

- IP architecture simplifies installation

- Configuration changes automatically distributed

- Remote monitoring tools reduce site visits and shorten resolution times

BENEFITS OF INTEGRATED COMMAND

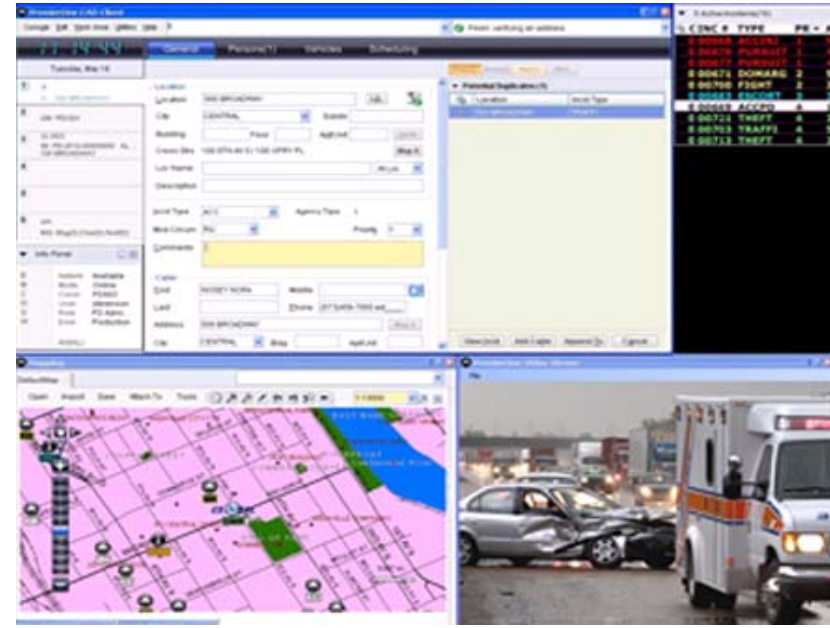## NEXT GEN READY PLATFORM PROVIDES..

SEAMLESS USER INTERFACE

- Common display of application controls
- Integration across applications – Consoles/CAD/Video
- Streamlined workflow
- Second nature experience – designed uniquely for public safety

RICHER INTERACTIONS

- Converged voice, data and video for better situational awareness
- Common services shared across the platform
- Architected for advanced information sharing
- Unified query and reporting tools

FAVORABLE ECONOMICS

- Open, modular platform utilizing MSFT, ESRI technology
- Scale storage & processors as needed
- Centralized administration & advanced system monitoring
- Intuitive design makes it easier to train personnel

Thank You

For More Information:

Bill Mertka

Offer Manager, NG9-1-1 – Advanced Services

Motorola Solutions

william.mertka@motorolasolutions.com

847-576-3420

Terry Eby

Solutions Architect, NG9-1-1 – Advanced Services

Motorola Solutions

terryeby@motorolasolutions.com

904-755-2039